2. The method of claim 1 wherein the step of applying resin to the chip comprises dipping the bumps on the interconnect side of the chip to a predetermined depth in a pool of resin, and then withdrawing the chip from the resin pool.

3. The method of claim 1 wherein applying resin to the chip comprises providing a reservoir having a bottom, providing a pool of resin in the reservoir to a shallow depth over the reservoir bottom, dipping the bumps on the chip into the resin pool so that bumps on the chip contact the reservoir bottom, and then withdrawing the chip from the resin pool.

Please add the following new claims 12 - 17:

12. A method for encapsulating flip chip interconnects, comprising applying a limited quantity of encapsulating resin to the interconnect side of an integrated circuit chip by dipping the interconnect side of the chip to a predetermined depth in a pool of resin and then withdrawing the chip from the resin pool, and thereafter bringing the chip together with a substrate under conditions that promote the bonding of bumps on the interconnect side of the chip with bonding pads on the substrate.

13. The method of claim 12 wherein the predetermined depth to which the chip is dipped in the pool approximates a bump standoff height, so that the surface of the resin pool contacts a surface of the chip, so that as the chip is withdrawn from the resin pool some quantity of resin may remain on the chip surface as well as on features that standoff from the chip surface.

14. The method of claim 12 wherein the predetermined depth to which the chip is dipped in the pool is less than the bump standoff height, so that the chip surface does not contact the resin pool, with the result that when the chip is withdrawn from the resin pool some quantity of resin remains only on features that standoff from the chip surface.

10. A method for encapsulating flip chip interconnects, comprising applying a limited quantity of encapsulating resin to the interconnect side of an integrated circuit chip by providing a reservoir having a bottom, providing a pool of resin in the reservoir to a shallow depth over the reservoir bottom, dipping the chip into the resin pool so that bumps on the chip contact the reservoir bottom, and then withdrawing the chip from the resin pool; and thereafter bringing the chip together with a substrate under conditions that promote the bonding of bumps on the interconnect side of the chip with bonding pads on the substrate.

11. The method of claim 10 wherein the shallow depth of the pool over the reservoir bottom approximates the bump standoff height.

12. The method of claim 10 wherein the shallow depth of the pool over the reservoir bottom is less than the standoff height.

REMARKS

The specification is amended herein to correct obvious errors of a typographical or editorial nature. Claims 1, 2 and 5 are amended for improved clarity of presentation. Claims 12 - 17 are newly added. No new matter is introduced by any of the amendments, and entry thereof is requested. Claims 1 - 17 are in the application, of which claims 8 - 11 have been withdrawn as being directed to a nonelected invention; claims 1 - 7 and 12 - 17 are now under consideration. Reconsideration of the application, as amended, is requested.

Applicants' invention is directed to making flip chip interconnects, by applying a limited quantity of encapsulating resin to at least the interconnect bumps on the interconnect side of a singulated integrated circuit chip, and thereafter bringing the chip together with a substrate under conditions that promote the bonding the bumps on the chip with bonding pads on the substrate. According to Applicant's invention, at least the contact portion of the bumps is covered with encapsulant material, and the substantially uncured encapsulant material is displaced from between the bumps and the pads as the bonding is carried out. The bonding is carried out without delay (typically within seconds) following application of the encapsulant to the bumps. No